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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MINEHIRO KONYA, YUSUKE MIYATA, KEI OKUDA and
TAKASHI YASUMOTO

Appeal 2009-13057
Application 10/611,871
Technology Center 2600

Before ROBERT E. NAPPI, MARC S. HOFF, and DEBRA K. STEPHENS
Administrative Patent Judges.

NAPPI, *Administrative Patent Judge.*

DECISION ON APPEAL¹

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

This is a decision on appeal under 35 U.S.C. § 6(b) of the rejection of claims 7 through 13, 15 through 30, and 32 through 35.

We affirm-in-part.

INVENTION

The invention is directed to a mobile device which can capture and display images. The device is able to generate and display three dimensional images. See page 2 and 3 of Appellants' Specification. Claim 16 is representative of the invention and reproduced below:

16. Mobile equipment comprising:
 - a pickup device picking up an image of a subject;
 - a parallax information portion determining parallax information of said subject;
 - a three dimensional image creation portion creating a three dimensional image by applying said parallax information to said image; and
 - a display unit displaying said three dimensional image, wherein said parallax information portion calculates said parallax information based on the intensity of light reflected from the subject and on a distance between human eyes.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Tao	US 5,818,463	Oct. 6, 1998
Aoki	US 2002/0054032	May 9, 2002
Taniguchi	US 6,940,646 B2	Sep. 6, 2005
Pavlidis	US 6,995,762 B1	Feb. 7, 2006

Japanese Patent Application 200267232 (Pub No 2002077944 A), Pub 15.03.02, by Ono Shuji (Fuji Photo Film Co Ltd), all pages (and English abstract and translation).

REJECTIONS AT ISSUE

The Examiner has rejected claims 16, 17, 21, 24 through 26, and 29 under 35 U.S.C. § 102(a) as being anticipated by Shuji. Answer 3-8.²

The Examiner has rejected claims 7 through 13, 22, 27, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Shuji in view of Aoki. Answer 8-13.

The Examiner has rejected claims 15 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Shuji in view of Pavlidis. Answer 13-14.

The Examiner has rejected claims 18 through 20 under 35 U.S.C. § 103(a) as being unpatentable over Shuji in view of Taniguchi. Answer 15-16.

² Throughout the opinion we refer to the Answer mailed October 2, 2007.

The Examiner has rejected claims 32 and 35 under 35 U.S.C. § 103(a) as being unpatentable over Shuji in view of Tao. Answer 16-17.

The Examiner has rejected claims 23, 33, and 34 under 35 U.S.C. § 103(a) as being unpatentable over Shuji in view of Aoki and Tao. Answer 17.

ISSUES

Rejection of claims 16, 17, 21, 24 through 26, and 29 under 35 U.S.C. § 102(a)

Claim 16

Appellants' contentions with respect to the rejection of claim 16 under 35 U.S.C. § 102, present us with the issue: has the Examiner erred in finding that Shuji teaches calculating parallax based upon on the distance between human eyes?

Claims 17, 21, 24 through 26, and 29

In addition to the issues raised with respect to claim 16, Appellants' arguments directed to the rejection of independent claims 17 and 29 also present us with the issue: has the Examiner erred in finding that Shuji teaches a first and second data processing means?

Rejection of claims 7 through 13, 22, 27, and 28 under 35 U.S.C. § 103(a)

Appellants' arguments have presented us with two issues: has the Examiner erred in finding that Shuji teaches calculating parallax based upon on the distance between human eyes, and did the Examiner err in finding that the skilled artisan would combine the face cutting feature of Akoi with Shuji's device?

Rejection claims 15, and 30 under 35 U.S.C. § 103(a)

Appellants' arguments, on pages 20 through 22 of the Brief, have presented us with the issue: has the Examiner erred in finding that Pavlidis teaches calculating parallax information based upon differences between brightness between parts of the image?

Rejection of claims 23 and 32 through 35 under 35 U.S.C. § 103(a)

Appellants on pages 22 through 25 of the Brief, have presented one argument directed to the rejection of claims 32 and 35 over Shuji and Tao, and of claims 23, 33 and 34 over Shuji and Tao and Aoki. We separately address Appellants' arguments as they apply to these rejections in the analysis section.

ANALYSIS

Rejection of claims 16, 17, 21, 24 through 26, and 29 under 35 U.S.C. § 102(a)

Claim 16

Appellants' arguments have not persuaded us that the Examiner erred in finding that Shuji teaches calculating parallax based upon on the distance between human eyes, as recited in claim 16. Appellants argue that paragraph 0003 of the translated Shuji reference, which is relied upon by the Examiner, discusses prior art methods and Shuji's invention. Brief 12-13. Further, Appellants argue that Shuji's disclosure, in paragraph 0038 of the translated Shuji reference, of how the left eye and right eye images are generated does not include a calculation based upon the distance between

human eyes. Brief 13-14. Additionally, Appellants argue that Shuji's method is more complex than Appellants' method of determining parallax, which makes use of the calculated parallax angle α . Brief 14-15. We are not persuaded by these arguments.

In response to these arguments, the Examiner states that Shuji teaches using the distance between the human eyes to create binocular vision, citing paragraph 0003 of the translated Shuji reference.

Further, the Examiner states:

Furthermore, the geometry in the situation of using shifting results in an angle difference between the left and right viewpoint (left and right eye viewpoints of the user). There is an angular difference because the left and right eye viewpoints are slightly offset by a given angle in order to give the shifting effect in the, images. Basic geometry of the setup with these two offset viewpoints (where one is shifted relative to another) requires one to have a distance between the eyes and a distance to the object being seen by the left and right viewpoint. Since, Shuji teaches of shifting the viewpoint to given parallax information, the distance to the object and the distance between the viewpoints (left and right eyes) have to be considered and used by the reference in order to achieve correct output results. Otherwise, the image may look distorted and not have the correct amount of parallax present (i.e. the images may be shifting too little or too much).

Answer 19. We concur with the Examiner.

While paragraph 0003 is referring to the prior art, it does establish that to create a binocular image, the images are captured as if they were taken at the position of the left and right eye, e.g. at the distance between the human eyes. Shuji teaches that the system can be used to create binocular or polyocular images. See paragraphs 0005 and 0007 of the translation. A binocular image would for example include images 21d and 21b of figure 2, whereas the polyocular images would include all of images 21a-21e. See

paragraph 0012, 0013 and 0044 of translated Shuji reference. Thus, given these disclosures, we agree that the skilled artisan would have recognized that images 21d and 21b are selected considering the distance between the human eyes. Further, whether or not Shuji's system may differ and be more complex than Appellants' disclosed system is of no consequence as the claimed invention does not bear out the difference between the two, e.g. the claim does not recite use of the use of the calculated parallax angle α . Accordingly, Appellants' arguments have not persuaded us that the Examiner erred in rejecting claim 16.

Claims 17, 21, 24 through 26, and 29

Appellants' arguments have not persuaded us that the Examiner erred in finding that Shuji teaches a first and second data processing means. Claim 17 recites "a first data processing means for generating three dimensional data derived from the two dimensional data." Appellants' Specification discusses the structure for performing this function as a processor which generates a three dimensional model for the two dimensional image, see steps S404 and S405 of figure 4, and description on pages 8 and 9 the Specification. Claim 17 further, recites "a second data processing means for converting the three dimensional data into the image data for the right eye and the image data for the left eye." Appellants' Specification discusses the structure for performing this function as a processor which generates the two images using the parallax information, see Steps 406-407 of figure 4, and description on page 10 the Specification. Claim 29 recites similar limitations. Thus, the scope of independent claims 17 and 29 includes that the image is processed to create a three dimensional

model and then the parallax information is used to generate two images, one for the left and one for the right eye of the user.

In rejecting these claims the Examiner finds that Shuji's teaching of generating three dimensional information by giving different parallax amounts to parts of the image discussed in paragraph 0010 meets the claimed first processing means. Answer 20. Further, the Examiner finds that Shuji's teaching of applying a shift between the left and right eye view points as discussed in paragraph 0038, meets the claimed second processing means. Answer 20. We do not find, however, that the evidence supports the Examiner's finding. While as discussed above with respect to claim 16 we find that Shuji teaches generating an image for viewing by the left and right eye, we do not see that paragraph 0010 teaches generating three dimensional data given the two dimension data and then from this three dimensional data generating the images as claimed. Rather, it appears that paragraph 0010 of Shuji is describing the same process of creating multiple images as described in paragraph 0038 of Shuji. Thus, Shuji does not teach the first or second processing means as claimed, and we will not sustain the Examiner's anticipation rejection of independent claims 17, 29 or dependent claims 21 and 24 through 26.

*Rejection of claims 7 through 13, 22, 27, and 28 under 35 U.S.C.
§ 103(a)*

Initially, we note that claims 22, 27 and 28, are dependent upon claim 17. As discussed above we will not sustain the Examiner's rejection of claim 17. The Examiner has not found that Aoki remedies the deficiencies noted in the rejection of claim 17. Accordingly, we will not sustain the

Examiner's rejection of claims 22, 27, and 28 for the reasons discussed with respect to claim 17.

Appellants' arguments on page 19 and 20 of the Brief directed to the Shuji teaching of calculating parallax based upon on the distance between human eyes have not persuaded us of error in the Examiner's rejection of independent claims 7, 10 and 13. Representative claim 7 recites a parallax information portion determining parallax of said subject based on a distance between human eyes. Thus, as discussed above with respect to claim 16 we concur with the Examiner's finding that Shuji teaches determining parallax based upon distance between human eyes. Accordingly, Appellants' arguments have not persuaded us of error in the Examiner's rejection.

Appellants argue on pages 11 and 12 of the Reply Brief that the Examiner's reasons for combining Shuji with Aoki is improper. Initially, we note that Appellants did not raise this issue in the Brief. Thus, those arguments are deemed waived. Appellants have not explained why, nor is it apparent that these arguments were necessitated by a new point in the Answer or any other circumstance constituting "good cause" for its belated presentation. *See Ex parte Borden*, 93 USPQ2d 1473, 1473-74 (BPAI 2010) ("informative"³) (absent a showing of good cause, Board not required to address argument in Reply Brief that could have been presented in the principal Brief).

³ The "informative" status of this opinion is noted at the following Board website: <http://www.uspto.gov/ip/boards/bpai/decisions/inform/index.jsp>.

Further, Appellants' statements in support of this argument seem to admit that applying the teachings of Shuji and Aoki would result in the claimed invention. Appellants state:

Appellants submit that the applying the teachings of Aoki to the invention of Shuji would merely involve a specific image to be stereoscopically displayed. In other words, the combination of Aoki and Shuji would at most result in obtaining distance information for all pixels in a face image in order to display a stereoscopic image of the face image.

To the contrary, claim 7 requires that parallax information be applied to a cut out of a face image in order to create a three dimensional image of the original picked up image.

Reply Brief 12. While we do not agree that this is the only way the references could be combined, the combination proffered by Appellants nonetheless teaches the claimed feature. Claim 7 does not recite that the parallax information is applied to *only* the cut out portion, but rather that the parallax information is applied to the cut out portion. As the cut out is a portion of the entire image, applying the distance information to all of the pixels, which Appellants state would be the result of combining the references, results in applying the parallax information to the pixels in the cut out portion.

Accordingly, Appellants' arguments directed to the independent claim 7 have not convinced us of error in the Examiner's rejection. Accordingly, we sustain the Examiner's rejection of claims 7 through 13.

Rejection claims 15, and 30 under 35 U.S.C. § 103(a)

Appellants' arguments have persuaded us that the Examiner erred in rejecting claim 15. Independent claim 15 recites that the parallax

information is based upon the differences in brightness between parts of the image. In rejecting this limitation, the Examiner has relied upon Pavlidis's teaching of calculating a scale factor for an image. The Examiner equates using a LASER to determine the distance between portions of an image, by measuring distance between bright spots created in the image, to determine the depth or parallax of the image. Answer 13, 24. We concur with the Examiner's finding that Pavlidis teaches using a laser and measuring distance between bright spots to determine distance between parts of an image. Col. 16, l. 65- col. 16, l. 1. However, we disagree with the Examiner's determination that this meets the limitations of claim 15. Claim 15 recites that differences in brightness are used to determine parallax information - Pavlidis teaches that the distance between bright spots is measured, not the difference in brightness between elements. Thus, the Examiner has not demonstrated that the limitations of independent claim 15, or claim 30 which depends upon claim 15, are taught by the prior art. Accordingly, we will not sustain the Examiner's rejection of claims 15 and 30.

Rejection of claims 23, 32, through 35 under 35 U.S.C. § 103(a)
Claims 23 and 35

Initially, we note that claims 23 and 35 are ultimately dependent upon claim 17. The Examiner's rejection of these claims relies upon Shuji to teach the limitations of independent claim 17. Accordingly, we will not sustain the Examiner's rejections of claims 23 and 35 for the reasons discussed with respect to claim 17.

Claim 32

Appellants' arguments on page 23 and 24 of the Brief, assert that the rejection of claim 32 is in error for the reasons discussed with respect to claim 17. Appellants further argue that although Tao and Shuji may be combined to create an animation, neither of the references disclose the conversion of three dimensional data based upon a model into image data for the right and left eye. Brief 24. We concur with Appellants.

We first observe that claim 32 is dependent upon claim 7, not claim 17, and does not recite a limitation directed to a first and second data processing means; thus, arguments directed to claim 17 are not directly on point. However, claim 32, like claim 17, recites that the three dimensional image creation portion generates three dimensional data based upon a face geometry model. The Tao reference does discuss using models to generate three dimensional data. Col. 2, ll. 52-65. However, Tao does not teach using this data to generate left and right image data. As discussed *supra* with respect to claim 17, Shuji does not teach generating images for the left and right eye given three dimensional data from a model. Accordingly, we will not sustain the Examiner's rejection of claim 32.

Claims 33 and 34

Appellants present the same arguments with respect to claim 33 and 34 as discussed above with respect to claim 32. We are similarly persuaded of error in the Examiner's rejection. Claims 33 and 34 are dependent upon independent claims 10 and 13 respectively and recite similar limitations to those discussed above with respect to claim 32. The Examiner's rejection of these claims similarly relies upon Tao to teach the feature of the using models to generate three dimensional data. The Examiner has not shown

that the additional teachings of Akoi makes up for the deficiency noted above in the rejection of claim 32. Accordingly, we will not sustain the Examiner's rejection of claims 33 and 34 for the reasons discussed with respect to claim 32.

CONCLUSION

Appellants have not persuaded us of error in the Examiner's rejection of claims 7, 10, 13, and 16. However, Appellants have persuaded us of error in the Examiner's rejection of claims 17 through 30, and 32 through 35.

ORDER

The decision of the Examiner to reject claims 7 through 13, 15 through 30, and 32 through 35 is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

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